

Impulse E/VHT

PARTS MANUAL



Chief Product Warranty-Parts

Limited Warranty

All Chief Automotive Replacement Parts are warranted to the original owner for 90 days from invoice date. During this period, Chief Automotive shall replace those parts returned to the factory which prove upon inspection by Chief Automotive to be defective. Transportation and labor costs are not included.

This warranty shall not apply unless the product is installed, operated, used and maintained in accordance with Chief Automotive's specifications as set forth in Chief Automotive's installation, operation and maintenance instructions.

This Warranty does not cover normal maintenance or adjustments, remedies for routine maintenance, damage or malfunction caused by improper handling, installation, abuse, misuse, negligence, carelessness of unauthorized repairs or alterations have been attempted or made to the product.

This warranty is exclusive and all other expressed or implied warranties including merchantability or fitness for a particular purpose are hereby expressly excluded.

The remedies described are exclusive and in no event shall Chief Automotive be liable for any special, consequential or incidental damages of any kind including damages for breach of or delay in performance of the warranty.

This warranty shall be governed under law of the State of Indiana, and shall be subject to the exclusive jurisdiction of the Court in the State of Indiana in the County of Jefferson.

PARTS INFORMATION

To order replacement parts for the Chief E/VHT system, contact an authorized representative of Chief Automotive Technologies, 800-445-9262 Option 2. The parts listed in the E/VHT Parts Manual (Part No. 450496) represent what Chief Automotive Technologies considers to be user installed. Other repairs should be deferred to an authorized representative.

When contacting Chief Automotive Technologies by telephone or mail, provide the following information: name, name of business, business telephone number, and business address. Additional information needed when ordering: description of part(s) and part number(s). Also indicate the model for which the part is intended.

NOTE: Chief reserves the right to alter product specifications and/or package components without notice.



CAUTION: Always use Chief Automotive Technologies authorized replacement parts with the E/VHT system. When replacing any part make certain the part meets the original equipment requirements.

Electrical Components

All electrical cords and components must be replaced with Chief Automotive Technologies authorized replacement parts.

Hydraulic Hoses

The two wire hoses furnished with this product meet the requirements of SAE 100R2 or SAE 100R16, and have a working pressure of 5,000 psi. They should not be used with any other system having a higher than 5,000 psi output.

All hydraulic components must be replaced with Chief Automotive Technologies authorized replacement parts.

Bolts/Fasteners

All bolts and fasteners must be replaced with Chief Automotive Technologies authorized replacement parts and must not be less than Grade 5 (Class 8.8).

Any bolt used in a pulling clamp that is frequently tightened must be Grade 8 (Class 10.9).

All bolts lengths and diameters must be equal to those installed at the factory.

Chain

The 1/2 inch tower chains furnished with this product are a special alloy frame straightening chain designed exclusively for Chief Automotive Systems. to meet the rigid requirements of the collision repair industry. If replacement is required, purchase only the original Chief product from an authorized Chief Automotive Technologies, Inc. representative.

The auxiliary 3/8 inch chains available for this product are a special alloy frame straightening chain designed exclusively for Chief Automotive Technologies, Inc. to meet the rigid requirements of the collision repair industry. If replacement is required, purchase only the Chief product from an authorized Chief Automotive Technologies representative.

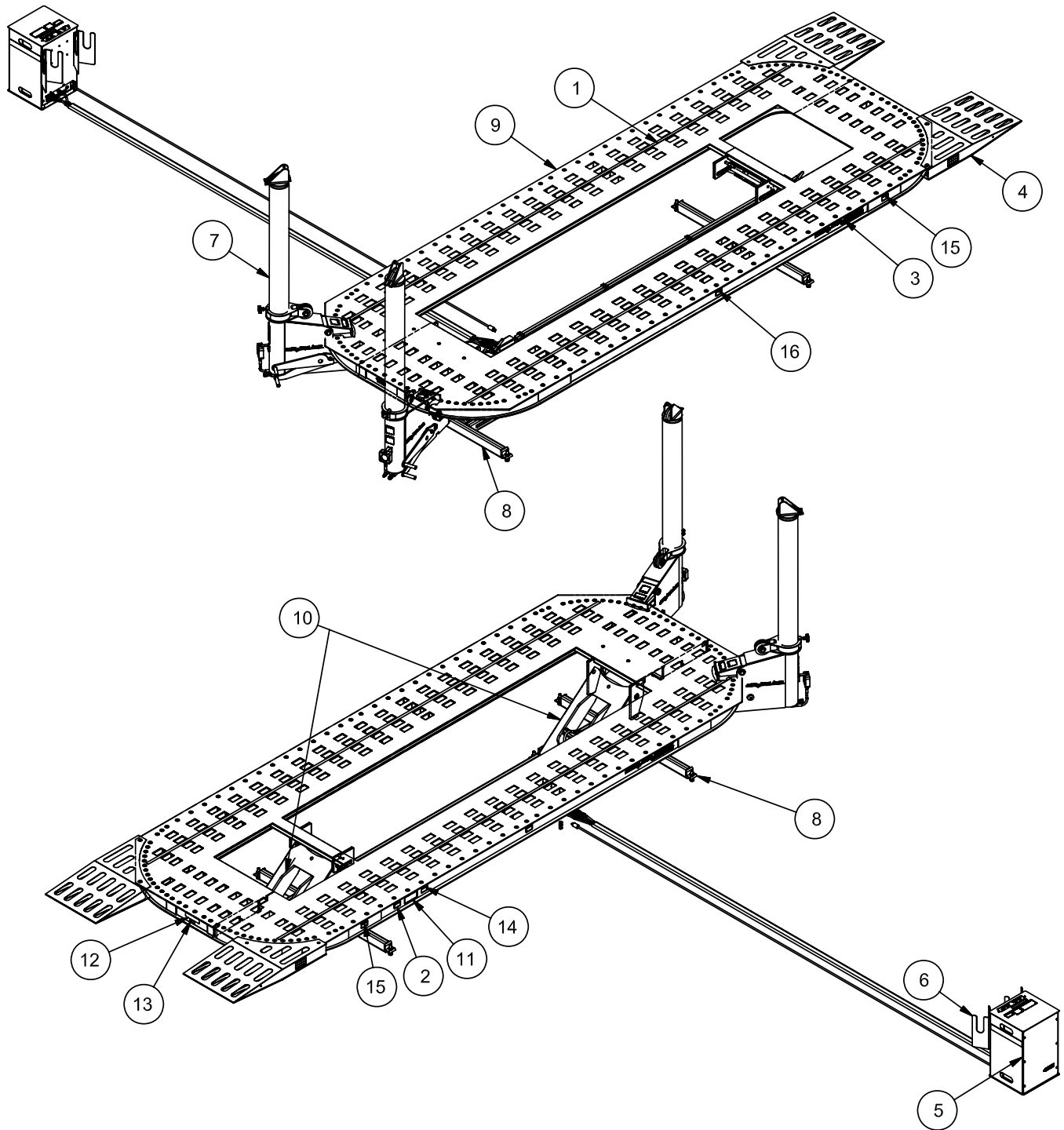


CAUTION: DO NOT use 3/8 inch chain on any towers.

Labels

Replacement SAFETY and WARNING labels are available in several languages, and may be ordered by contacting an authorized Chief Automotive Technologies representative.

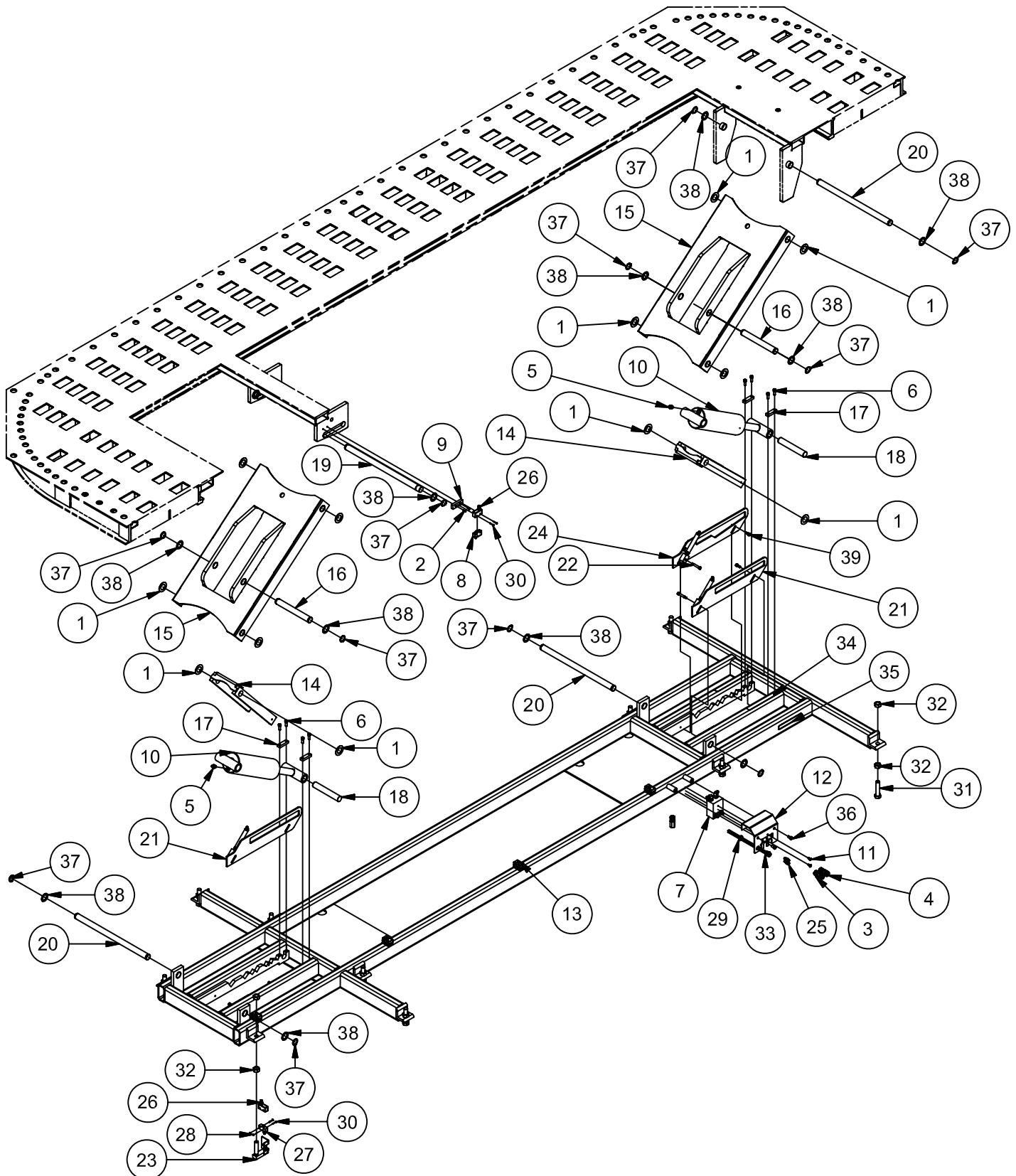
Assembly View - Chief E/VHT (20 Series Shown)



The Chief E/VHT system is available in several configurations. The deck is available in 18' x 80" and 20' x 88" sizes with two, three, or four towers. The illustrations in this manual are for a 20 series model, but the information applies to all E/VHT models.

Parts List		
ITEM	P/N	DESCRIPTION
1	305084	Tape, Black Striping 1" x 20' (for 20' Deck)
2	305093	Label, Caution - Wheel Stops
3	450044	Decal, Mainframe Impulse VHT
4	450350	Ramp Complete, Long, (Single)
5	450450	Assembly, E/VHT Cabinet (see Page 10)
6	450469	Bracket, E/VHT Cabinet Hose Holder
7	450470	Assembly, 360-10 Ton Tower (see Page 6)
8	450490	Weldment, E/VHT - 20 Porta-Frame
9	450501	Weldment, Wide Impulse - 20 VHT Mainframe
10	450580	Weldment, E/VHT Lift Leg
11	692090	Label, Caution Operation
12	692107	Label, Serial Number
13	692135	Label, Patent Pending
14	692143	Label, Caution - Lift of Persons Prohibited
15	692154	Label, Caution Protect Foot
16	693339	Label, Caution - Egress/Ingress

Exploded View - E/VHT Mainframe



Parts List - E/VHT Mainframe

Parts List		
ITEM	P/N	DESCRIPTION
1	305030	Washer, Thrust-1 1/4" ID x 2 1/4" OD x 1/16" Self Lubricating
2	305049	SCREW, 10-32 x 1/2" SHCS
3	305722	Connector, Male Flat Face
4	305723	Coupler, Female Flat Face
5	305724	Fitting, Hyd #6MB - #6Mj w/ Orifice
6	450195	Screw, 3/8" - 16NC x 1" Socket Head Cap
7	450440	Assembly, E/VHT Porta-Frame Manifold (see Page 14)
8	450444	Switch, E/VHT Tilt
9	450445	Adapter, E/VHT Tilt Switch
10	450446	Ram, Lift 4" Bore x 10 5/8" Stroke
11	450459	Screw, 1/4"-20 x 3/4" Flange Head
12	450491	Panel, E.VHT Port-Frame*
13	450493	Assembly, Twin Series Weld Clamp
14a	450495	Weldment, E/VHT Lock Arm, Prior to 4/2010**
14b	450051	Bolted Assembly, E/VHT Lock Arm, after 4/2010**
15	450580	Weldment, E/VHT Lift Leg
16	450586	Pin, E/VHT Lift Leg - 10"
17	450587	Retainer, E/VHT Lift Cylinder Bottom
18	450588	Pin, E/VHT Lift Cylinder Bottom - 7 5/8"
19	450842	Pin, Impulse VHT Tilt - 22 3/4"
20	450844	Pin, Impulse VHT Long - 22"
21	450865	Weldment, Impulse VHT Unlock (see Page 15)
22	450867	Bolt, 3/8" x 1 3/4" Shoulder 5/16"-18 Thread
23	450890	Weldment, E/VHT Overload Sensor
24	450940	Weldment, Impulse-20 VHT Unload (see Page 15)
25	450951	Bulkhead Fitting, 5/32" PTL
26	450955	Cover, With Strain Relief For Snap Action Switch
27	450956	Switch, E/VHT Overload
28	450957	NUT, #8-32, NYLON LOCK
29	450979	1/2" Conduit Lock, Tooth Nut
30	450982	SCREW, #8-32 x 1" BUTTONHEAD-HEX
31	539013	Bolt, M20 x 2.5 x 90 Hex Full Thread
32	539016	Nut, M20 x 2.5 x 90 Hex Full Thread
33	620242	Pig-Tail, Female Mini-Line Cord
34	683673	Tape, Red, Classic 1" x 9.5"
35	692085	Label, VHT lock arm position
36	692588	Bolt, 3/8"-16 UNC x 3/4" Grade 5 Plated
37	693468	Snap Ring, HD for 1 1/4" Shaft
38	707487	Washer, Flat-1 1/4" ID x 1 7/8" OD x 14 GA-plated
39	632268	Bolt, 3/8" x 3/8" Shoulder-5/16-18 Thread

*Note: If replacing a 450494 weldment, Order 450492 spacers (qty 2) and 620731 bolts (qty 2).

**Service Part Notes in back of parts manual.

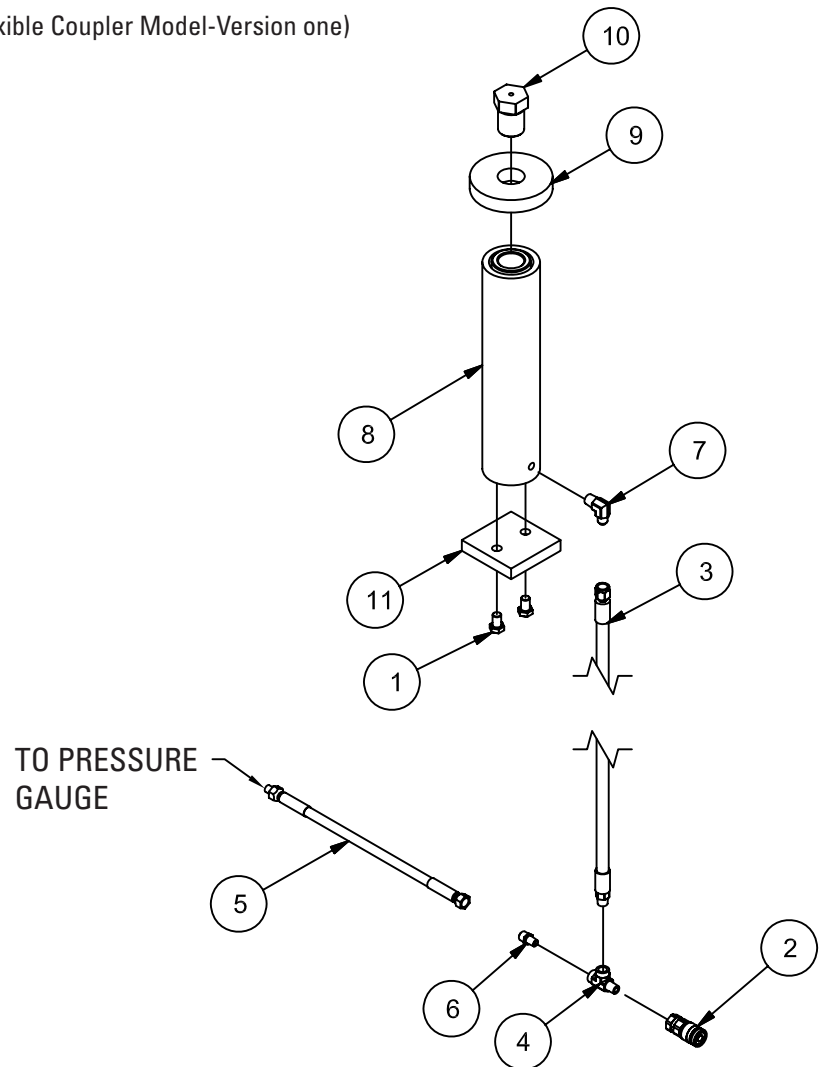
This diagram is an exploded view of a mechanical assembly, likely a piece of industrial machinery. It shows the relationship between various components, which are numbered 1 through 55. The components include structural frames, shafts, bearings, gears, pulleys, belts, and various fasteners like bolts, nuts, and washers. The diagram is organized to show the assembly sequence, with parts positioned relative to their final locations in the machine. Key features include a large vertical frame, a horizontal shaft assembly with multiple pulleys and belts, and a complex base structure with various mounting points and supports.

Parts List - E/VHT Tower (Rigid Coupler Model)

Parts List			Parts List		
ITEM	P/N	DESCRIPTION	ITEM	P/N	DESCRIPTION
1	305030	Washer, Thrust-1 1/4" ID x 2 1/4" OD x 1/16"	29	687125	Weldment, 360-10 Ton Sure Lock
2	305063	Washer, 3/4" ID x 1 1/8" OD x .093" Thick Shim	30	687137	Weldment, 360-10 Ton Sure Lock Release
3	CK120090E	Hook, 360 Tower	31	687143	Weldment, Wide Sure Lock Shaft
4	450146	Roller, Inside Tower	32	692091	Label, Warning, Force Clamp, Impulse
5	450195	Screw, 3/8-16NC x 1" Socket Head Cap	33	692093	Label, Cuation, Pinch-Point, Impulse
6	450279	Bar, Tower Linkage Driver	34	692096	Label, Caution Tower Position
7	450227	Bolt, 3/8" x 2" Shoulder - 5/16"-18 Thread	35	693337	Label, Warning, Do Not Position Yourself
8	638321	Guard, Outside Roller	36	693468	Snap Ring, HD for 1 1/4" shaft
9	450234	Spacer, Tower Force Clamp	37	770016	Nut, 3/4"-10NC Lock Jam GR5 PL
10	450235	Assembly, Tower Outside Wheel	38	450592	Block, Tower Manifold
11	450281	Shim, 360 Tower-16 ga.	39	305726	Fitting, Hyd #6MB-#6MB
12	450241	Washer, 2" OD x 13/32" ID x .047" Thick	40	305723	Coupler, Female Flat Face
13	450243	Screw, 3/8"-16 Socket Head Cap	41	630643	Bolt, 1/4"-20NC x 1 1/2" Hex Plated Gr. 2
14	450244	Key, 1/4" x 1/4" x 1"	42	305720	Fitting, Hyd #6MBX-#6MJ
15	450245	Decal, Impulse Tower	43	450594	Hose, -6FJX to 6MPX x 9 1/4" x 3/8" ID
16	450475	Weldment, Short 360-10 Ton Tower	44	601046	Straight Adapter, 6400-6-6
17	601130	Portable Gauge Assembly, Front S21	45	602829	Assembly, Tower Collar Locking Knob
18	610001	Tower Head, 1/2" Chain 10-Ton	46	450593	Hose, 53" x 3/8" ID -6FJX to -6FJX90M
19	450283	Bolt 3/8" x 1.25" SHLD 5/16"-18	47	607161	Machined Collar, S21
20	629773	Bolt, 3/4"-10 NC x 2 3/4" Long	48	601201	Roller, 5" Chain-S21/POSI TRAK Collar
21	450195	Bolt, 3/8"-16 UNC x 1" Hex	49	680747	Pin, Grooved for Cast Collar
22	687101	Spacer, 360-10 Ton Tower Outrigger	50	707487	Washer, Flat-1.25"ID x 1.875" OD x GA-plated
23	687102	Pin, 360-10 Ton Tower Linkage Long	51	692057	Decal, Caution Pulling Angle
24	687103	Pin, 360-10 Ton Tower Linkage Medium	52	450259	Dowel Pin, .5001-.5003 Dia. x 1.5"
25	687104	Pin, 360-10 Ton Tower Linkage Short	53	450236	Screw, 3/8"-16 UNC x 3" SHCS
26	687105	Bar, 360-10 Ton Tower Float Linkage	54	450282	Lock Nut 5/16"-18
27	687106	Shim, 360-10 Ton Tower Outrigger .0598"	55	450284	Washer Flat, 5/16" Trimmed
28	687107	Shim, 360-10 Ton Tower Outrigger .0164"*	56	450169	E/VHT, Tower Decal Pkg. (Not Shown)
			57	450510	Sure Lock Assist Assy (Not Shown)

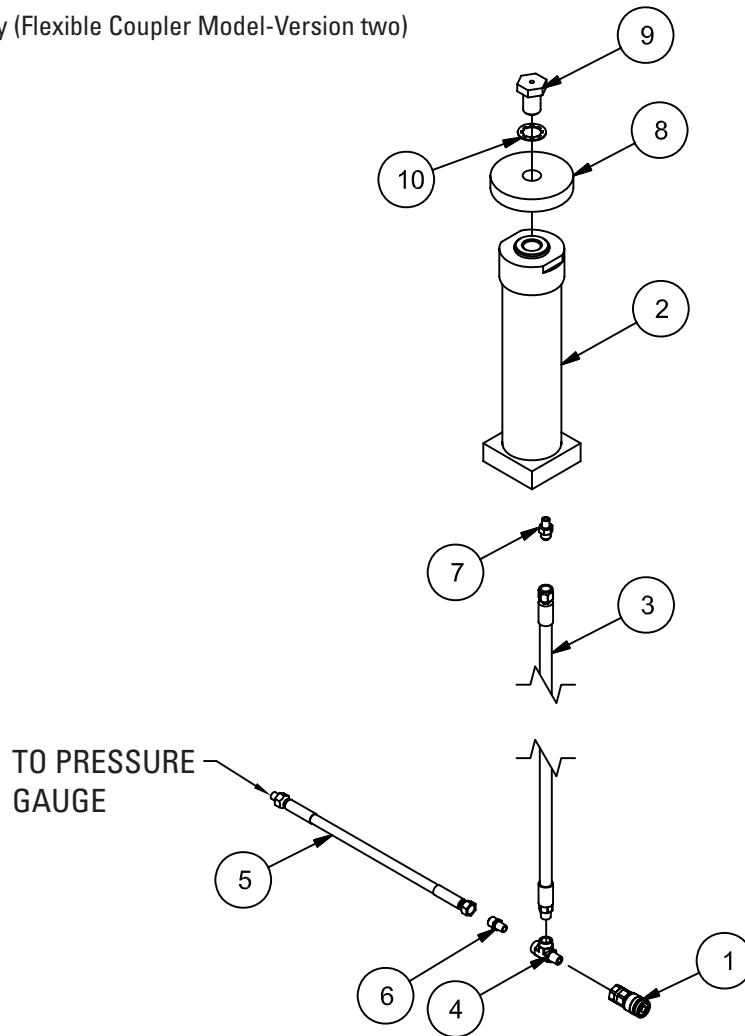
Note: Refer to pages 10 & 11 for cylinder repair kit information.

Exploded View-E/VHT Tower Cylinder Assembly (Flexible Coupler Model-Version one)



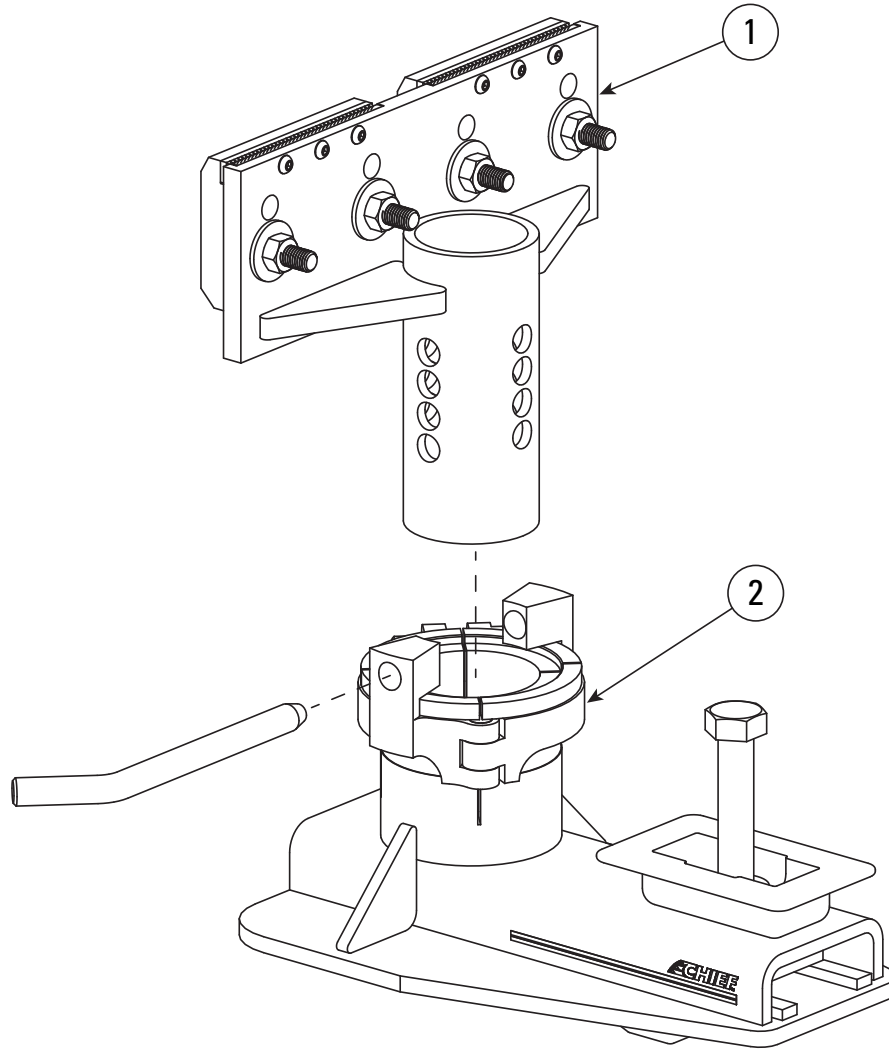
Parts List		
ITEM	P/N	DESCRIPTION
1	305048	BOLT, HEX, 1/2-13 x 3/4" Gr5, ZP
2	305745	COUPLER, FEMALE 2FFI-14NPTF- #6FMP
3	450473	Hose, -6FJX to 1/4 NPT male x 55" long x 3/8" ID
4	450499	Branch T, 1/4 MP - 1/4 FP - 1/4 FP
5	601001	Hose, 16" 6MPX-6FJX
6	601027	Adapter, -4MP - 6MJ
7	601047	Elbow Adapter, 3/8 NPT to -6 JIC
8	687108	Cylinder, 360-10 Ton Tower Spring Return Single Acting
9	687109	Flange, 4 3/4" Diameter
10	687146	Bolt, 360-10 Ton Tower Cylinder
11	687147	Block, 360-10 Ton Cylinder Mount
	H2510-99	Repair Kit, E/VHT Tower Cylinder Version One (not shown)

Exploded View-E/VHT Tower Cylinder Assembly (Flexible Coupler Model-Version two)



Parts List		
ITEM	P/N	DESCRIPTION
1	305745	COUPLER, FEMALE 2FFI-14NPTF- #6FMP
2	450471	Cylinder, 74.8mm Bore x 257mm Stroke Spring Return
3	450473	Hose, -6FJX to 1/4" NPT Male x 55" Long x 3/8" ID
4	450499	Branch T, 1/4" MP-1/4" FP-1/4" FP
5	601001	Hose, 16" 6MPX-6FJX
6	601027	Adapter, -4MP - 6MJ
7	601048	Straight Adapter, 6400-6-4
8	601238ML	Flange, 4 3/4" Diameter
9	602619	Ram Bolt
10	770147	Washer, 1" Internal Tooth Lock
	450074	Repair Kit, E/VHT Tower Cylinder Version Two (not shown)

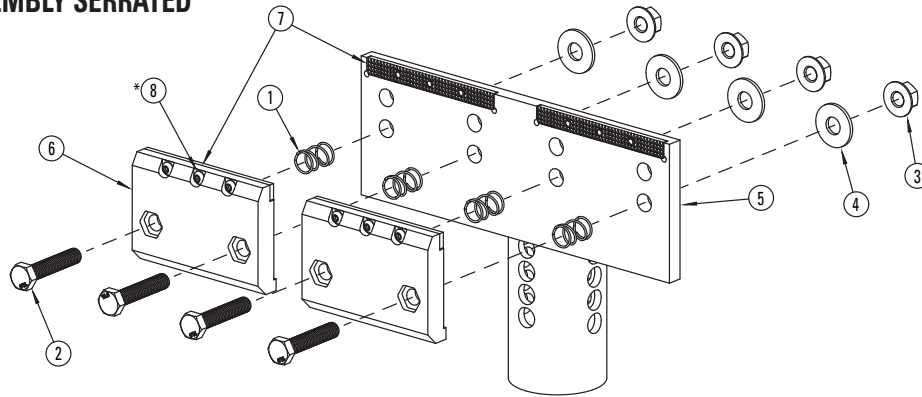
Exploded View-E/VHT Universal Anchor Stand



PARTS LIST		
ITEM	P/N*	DESCRIPTION
1	CK110017	UAS Assembly, Serrated
2	702082	Universal Anchoring System Metric (Short)

Exploded View-E/VHT Universal Anchor Stand

CK110017
UAS ASSEMBLY SERRATED

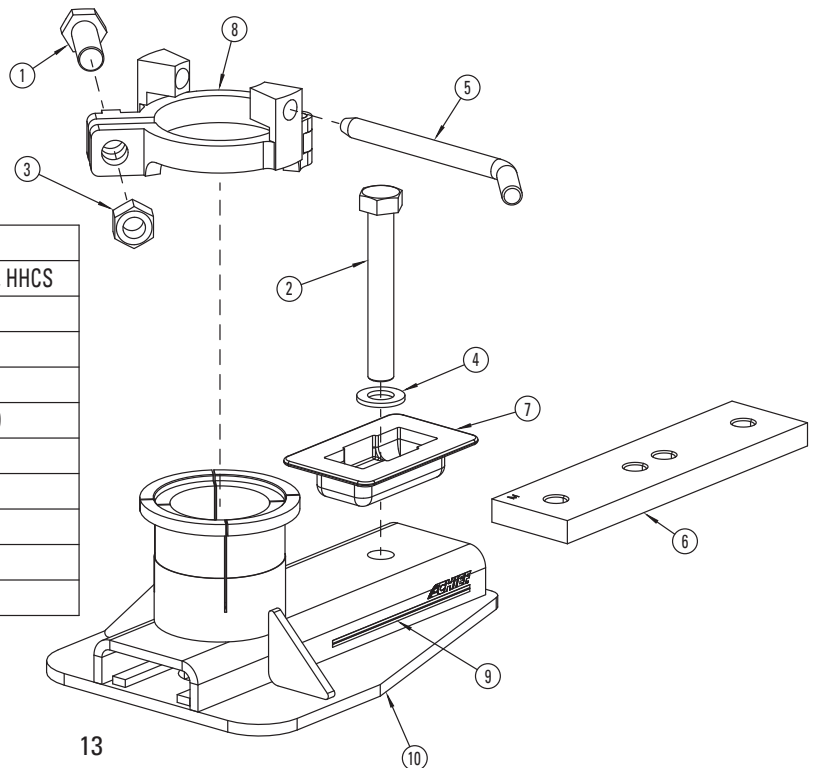


ITEM	QTY	PART NO.	DESCRIPTION
1	4	092110	SPRING, COMPRESSION .720" X 1"
2	4	539002	M12 X 1.75MM X 60MM HHCS Grd. 10.9
3	4	CK130190	M12 X 1.75 HEX FLANGE NUT, CLASS 10, ZINC PLATED
4	4	912605	1/2" FLAT WASHER
5	1	CK110018	ADAPTER TUBE ASSEMBLY UAS SERRATED
6	2	CK110020	SERRATED JAW ASSEMBLY
7	4	CK130009	SERRATED JAW INSERT
8	12	*CK130008	BUTTON-HEAD SOCKET C.S. M6 X 1.0 X 14MM LONG

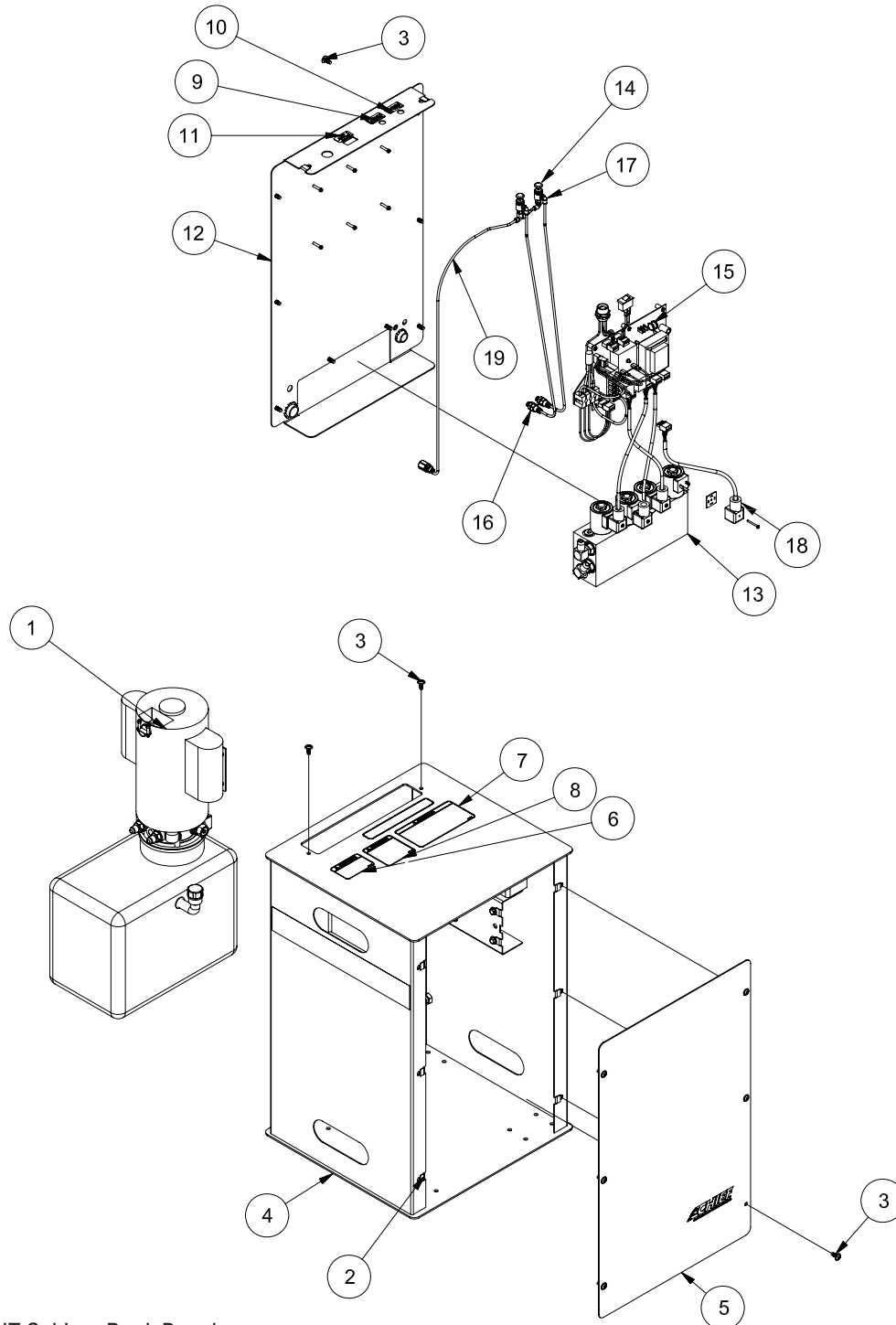
*NOTE:
1. APPLY THREAD LOCKER #242 OR EQUAL
TO EACH SCREW AND TIGHTEN.

702082
UNIVERSAL ANCHORING SYSTEM
METRIC SHORT

ITEM	QTY	PART NO.	DESCRIPTION
1	1	539006	BOLT, HEX, M20 X 2.5 X 60MM, PLATED, HHCS
2	1	539008	BOLT, HEX, M20 X 2.5 X 140MM
3	1	539016	M20 X 2.5 HEX NUT, PLAIN
4	1	601738	3/4" FLAT WASHER, PLTD
5	1	606686	HEIGHT ADJUSTING PIN, UAS, PLATED
6	1	606860	FASTENER BAR, UAS METRIC
7	1	607371	FASTENER PLATE, UAS
8	1	607381	LOCKING COLLAR ASS'Y
9	2	621472	DECAL, CHIEF W/STRIPES
10	1	702067	UNI-BODY STAND ASSEMBLY



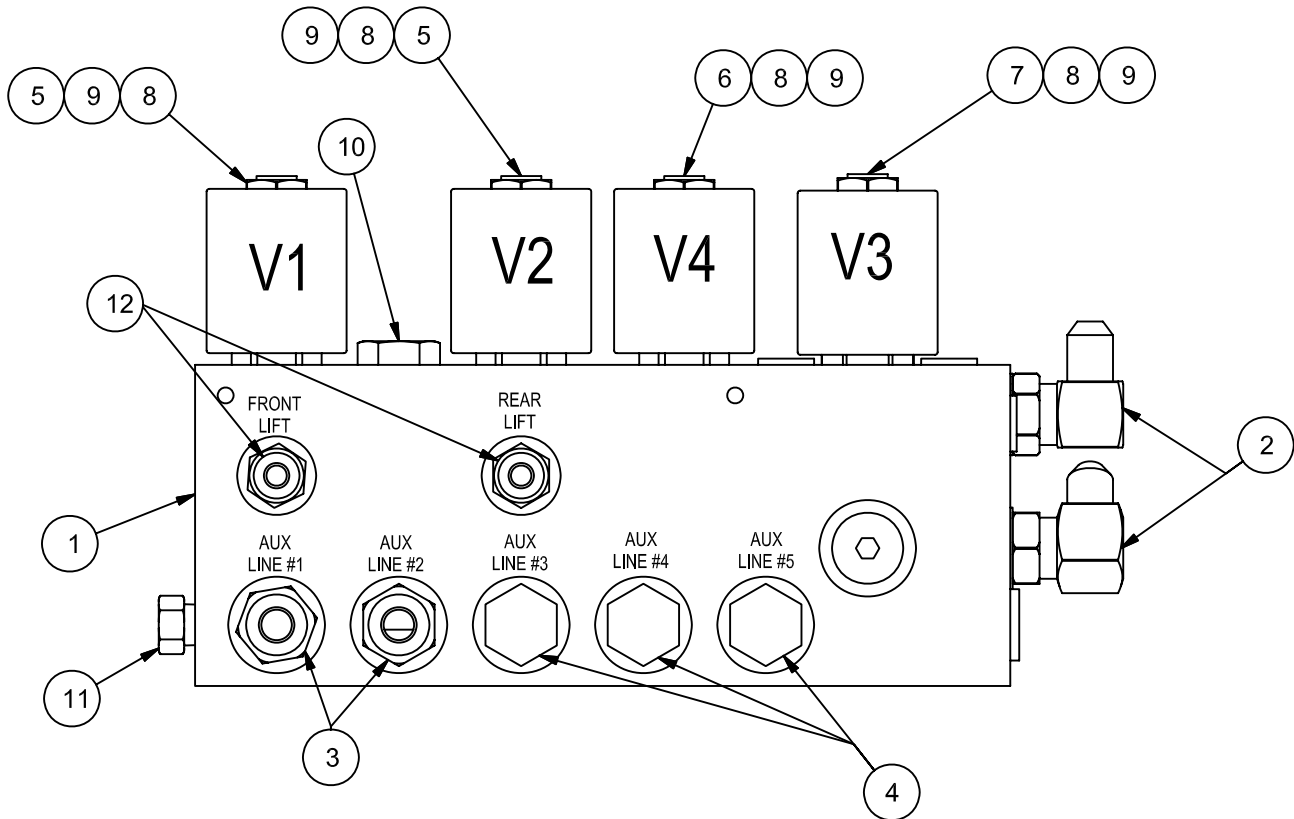
Exploded View - E/VHT Cabinet



Exploded View - E/VHT Cabinet Back Panel

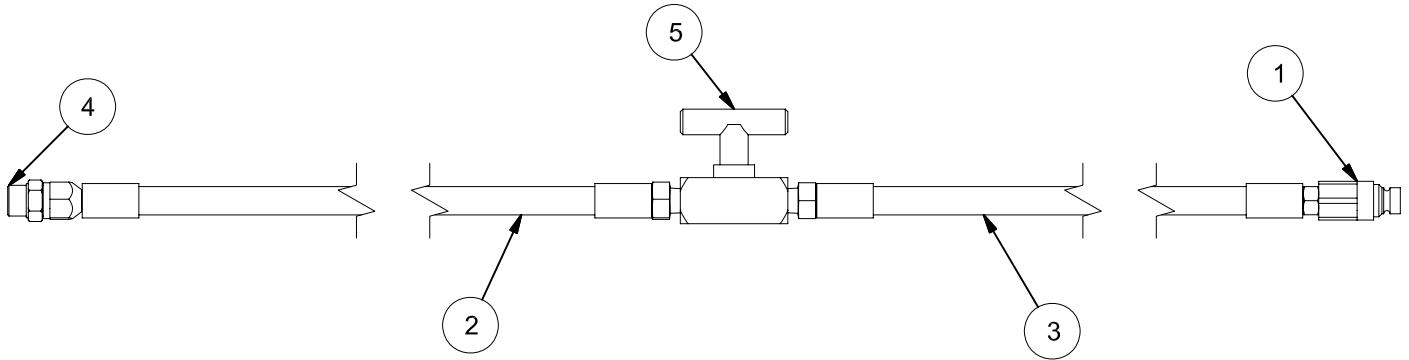
Parts List		
ITEM	P/N	DESCRIPTION
1	OS450451	Assembly, Power Unit, E/VHT
2	450453	Nut, 1/4" -20 NC J Style Clip
3	450459	Screw, 1/4" -20 x 3/4" Button Head
4	450460	Weldment, E/VHT Cabinet
5	450466	Panel, E/VHT Pump Cabinet Front
6	692053	Label Caution Lock Level
7	692055	Label, Caution, Lift Switch ON/OFF
8	692096	Label, Caution Tower Position
9	450057-D	Decal, D of 450057
10	450057-C	Decal, C of 450057
11	450057-B	Decal, B of 450057
12	450467	Panel, E/VHT Cabinet Rear
13	450455	Assembly, E/VHT Hydraulic Manifold
14	450889	Button Actuator/ 1/8" Stem (Button Only - For Brass Valve)
15	450952M	Assembly, E/VHT Control Board
16	450951	Bulkhead Fitting, 5/32" PTL
17	305748	Fitting, -6MBX-6MJ-6MJ T
18	450977	ISO DIN 43650 Type A Plug Assy
19	305848	Tubing, 5/32" Soft Nylon Black (Order by the Foot)

User Replaceable Parts - E/VHT Control Manifold



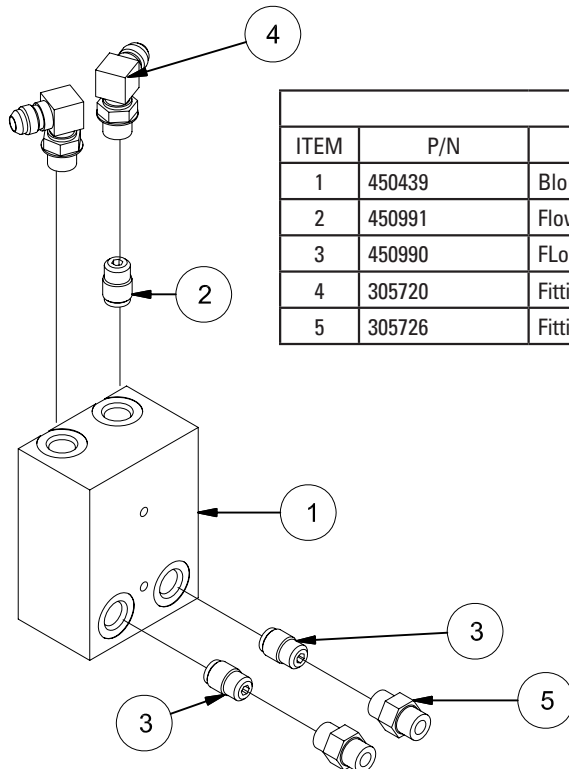
Parts List		
ITEM	P/N	DESCRIPTION
1	450456	Manifold, E/VHT Block - Fluid Tech
2	450483	Adapter, -8 ORB to -6 JIC Swivel 90
3	450489	Straight Adapter, 8MB-8MJ
4	450988	#8 O-ring Boss Plug, Hex Head
5	450992/450992PKR	Valve, Spool, 2-Way, Normally Closed - Fluid Tech/Parker
6	450993/450993PKR	Valve, Spool, 2-Way, Normally Open - Fluid Tech/Parker
7	450994/450994PKR	Cartridge Valve, 2-Way NC Poppet #10 - Fluid Tech/Parker
8	450996	Nut, Cartridge Coil Retainer
9	450997/450997PKR	Coil, HydraForce 24 VDC #10 - Fluid Tech/Parker
10	450998/450998PKR	Check Valve-Cartridge Style - Fluid Tech/Parker
11	601026	Plug, 1/4" NPT
12	601046	Straight Adapter, 6400-6-6

Assembly - E/VHT Auxiliary Line



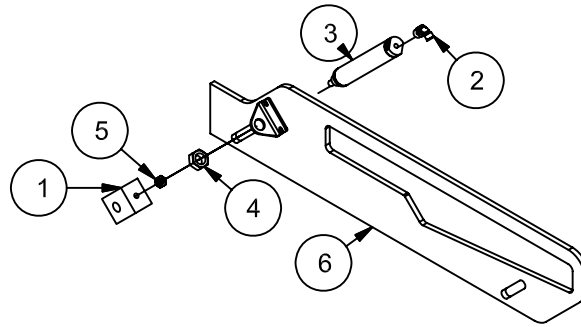
Parts List		
ITEM	P/N	DESCRIPTION
1	305722	Connector, Male Flat Face
2	450448	Hose, -8FJX to 3/8 NPT male x 300" long x 3/8" ID
3	450449	Hose, -60RB to 3/8 NPT male x 30" long x 3/8 ID
4	450489	Straight Adapter, 8MB-8MJ
5	602802	Valve, Auxiliary Line 3/8" Striaight

Exploded View - E/VHT Porta-frame Manifold



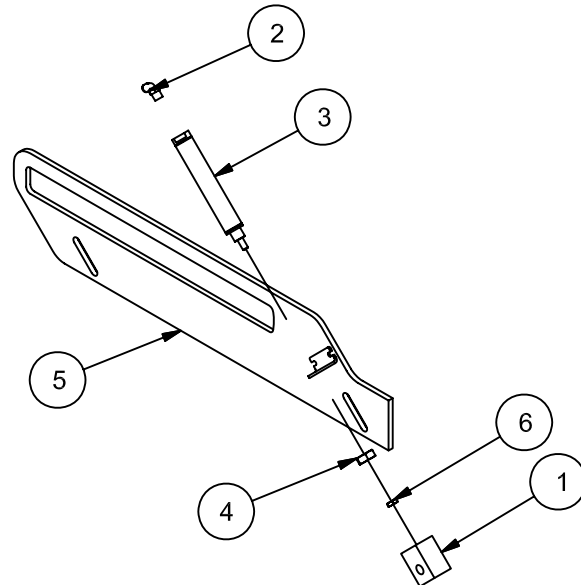
Parts List		
ITEM	P/N	DESCRIPTION
1	450439	Block, E/VHT Porta-Frame Manifold
2	450991	Flow Control, .4 GPM Pressure Compensated
3	450990	Flow Control, .5 GPM Pressure Compensated
4	305720	Fitting, Hyd #6MBX - #6MJ
5	305726	Fitting, Hyd #6MB - #6MB

Exploded View - E/VHT Unload Bar



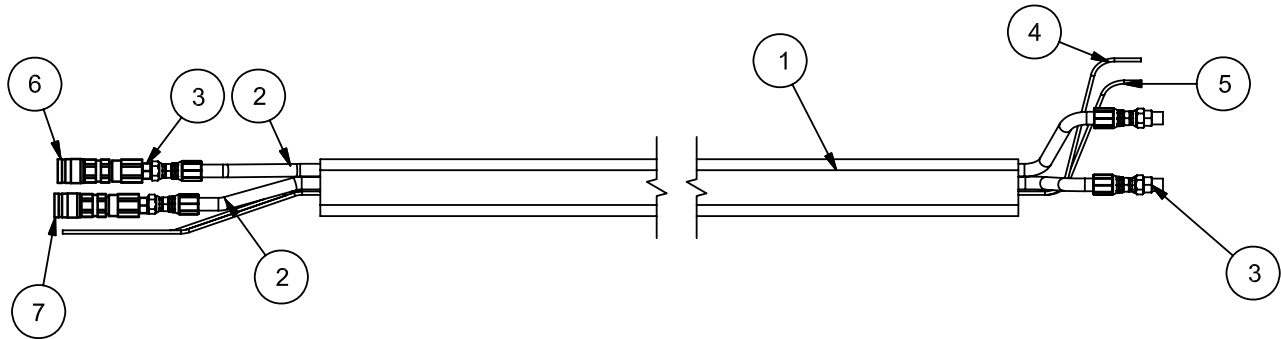
Parts List		
ITEM	P/N	DESCRIPTION
1	450443	Rod Eye, Impulse VHT Unlock
2	450858	Fitting, Pneumatic, 1/8" NPT to 5/32" Press-to-Lock 90
3	450862	Pneumatic Cylinder, 3/4" bore x 2" stroke spring return
4	450863	Nut, 1/2"-20 UNF Jam
5	450868	Nut, 1/4"-28 UNF Hex Jam
6	450940	Weldment, Impulse-20 VHT Unload (For 20' Deck)
	450870	Weldment, Impulse-18 VHT Unload (For 18' Deck)

Exploded View - E/VHT Unlock Bar



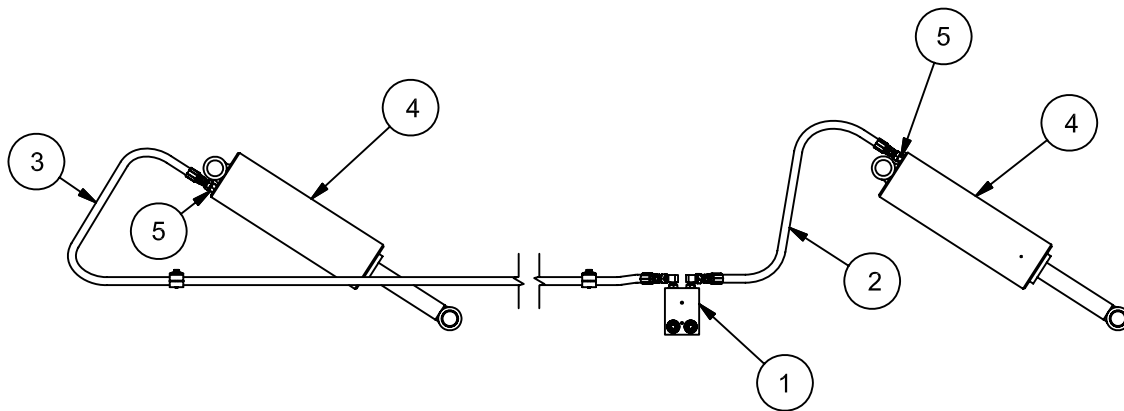
Parts List		
ITEM	P/N	DESCRIPTION
1	450443	Rod Eye, IMpulse VHT Unlock
2	450858	Fitting, Pneumatic, 1/8" NPT to 5/32" Press-to-Lock 90
3	450862	Pneumatic Cylinder, 3/4" bore x 2" stroke spring return
4	450863	Nut, 1/2"-20 UNF Jam
5	450865	Weldment, Impulse VHT Unlock
6	450868	Nut, 1/4"-28 UNF Hex Jam

Assembly, E/VHT Cabinet to Mainframe



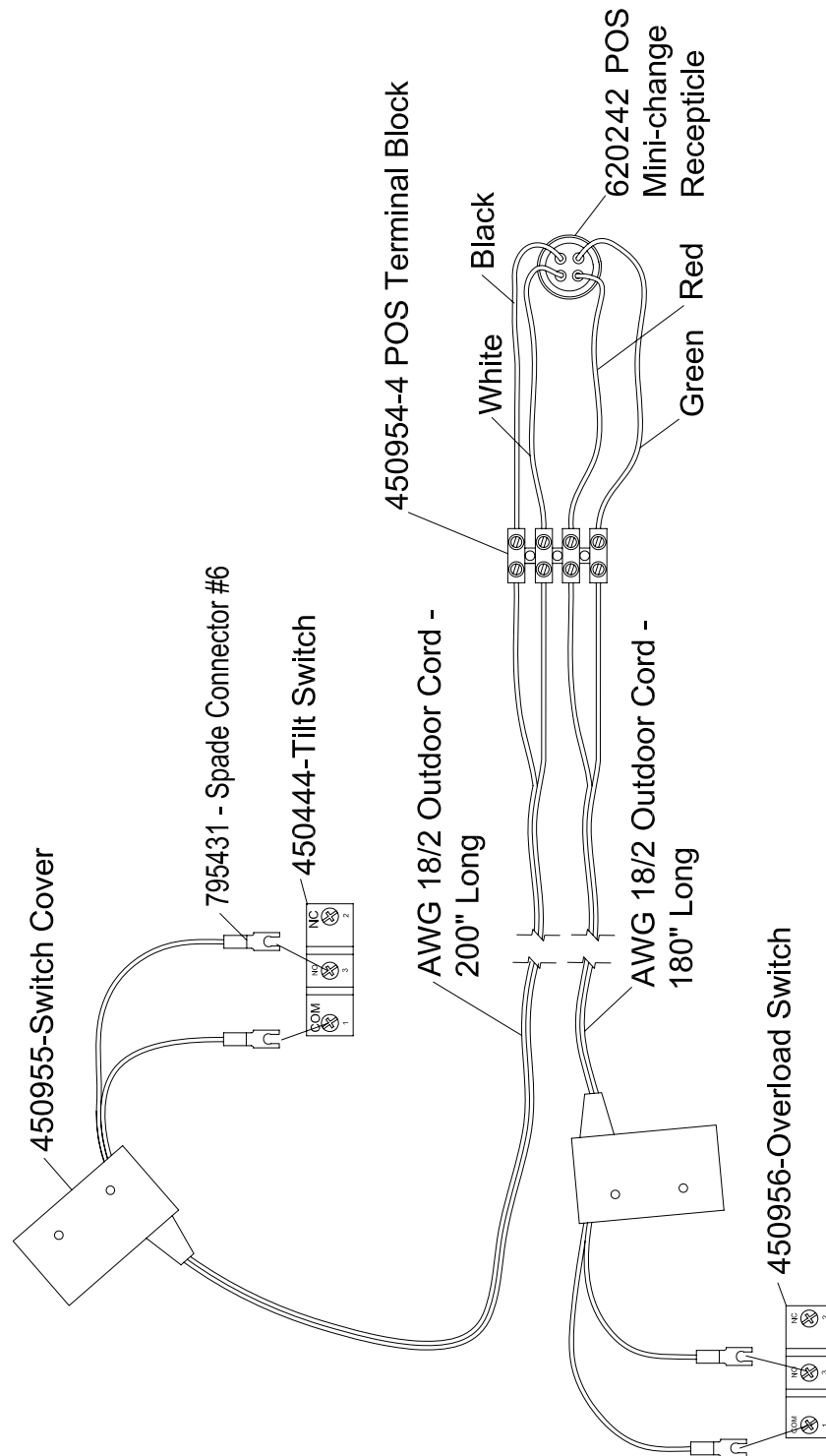
Parts List		
ITEM	P/N	DESCRIPTION
1	450452	Hose Protector, E/VHT Cabinet
2	450497	Hose, E/VHT Cabinet to Lift 218"
3	601046	Straight Adapter, 6400-6-6 (Order by the Foot)
4	305801	Tubing, 5/32" Soft Nylon Natural (Order by the Foot)
5	305848	Tubing, 5/32" Soft Nylon Black (Order by the Foot)
6	305722	Coupler, Male Flat Face (Front Lift Cylinder)
7	305723	Connector, Female Flat Face (Rear Lift Cylinder)

Assembly View - E/VHT Porta-Frame Hydraulic Hoses

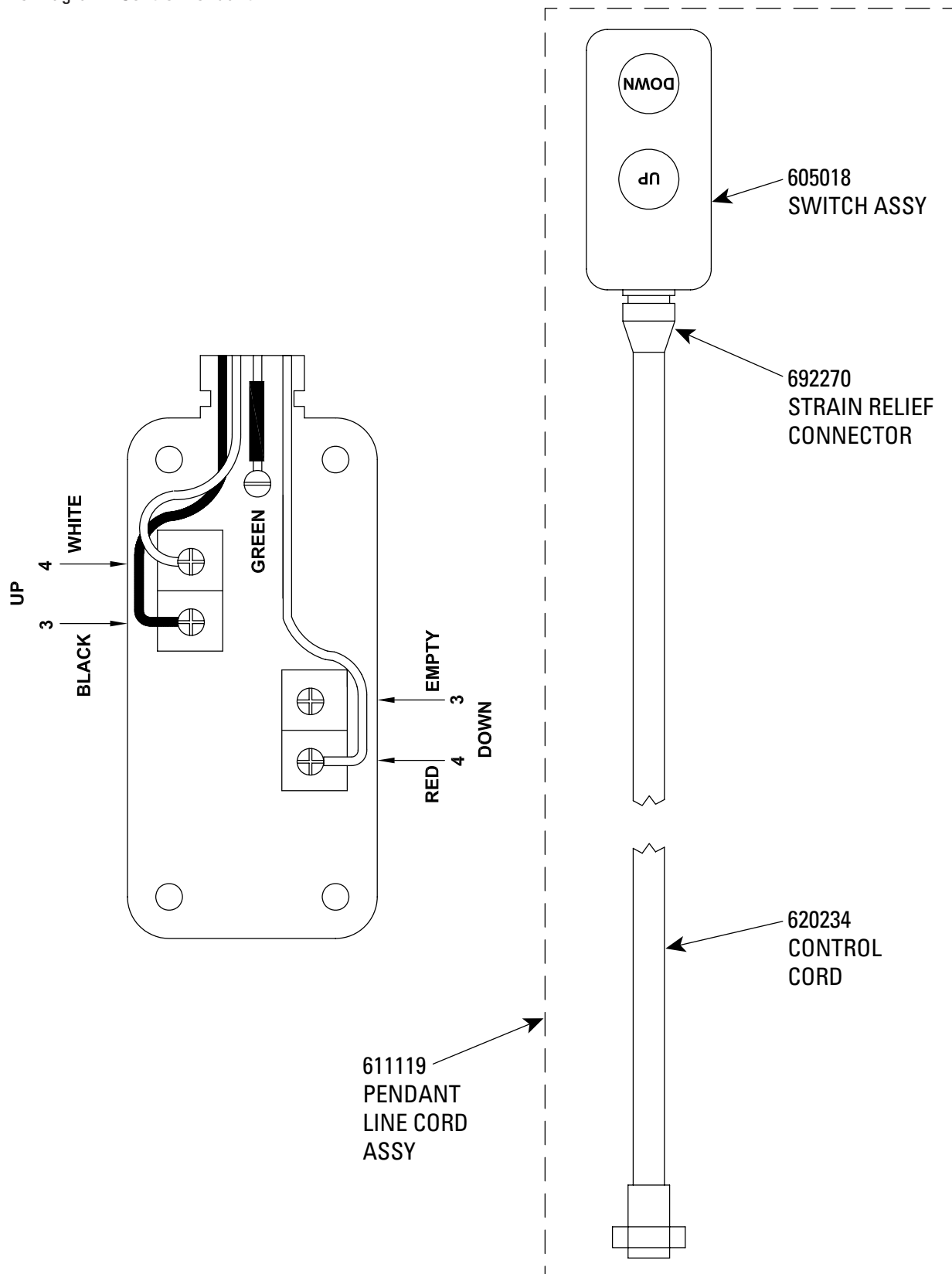


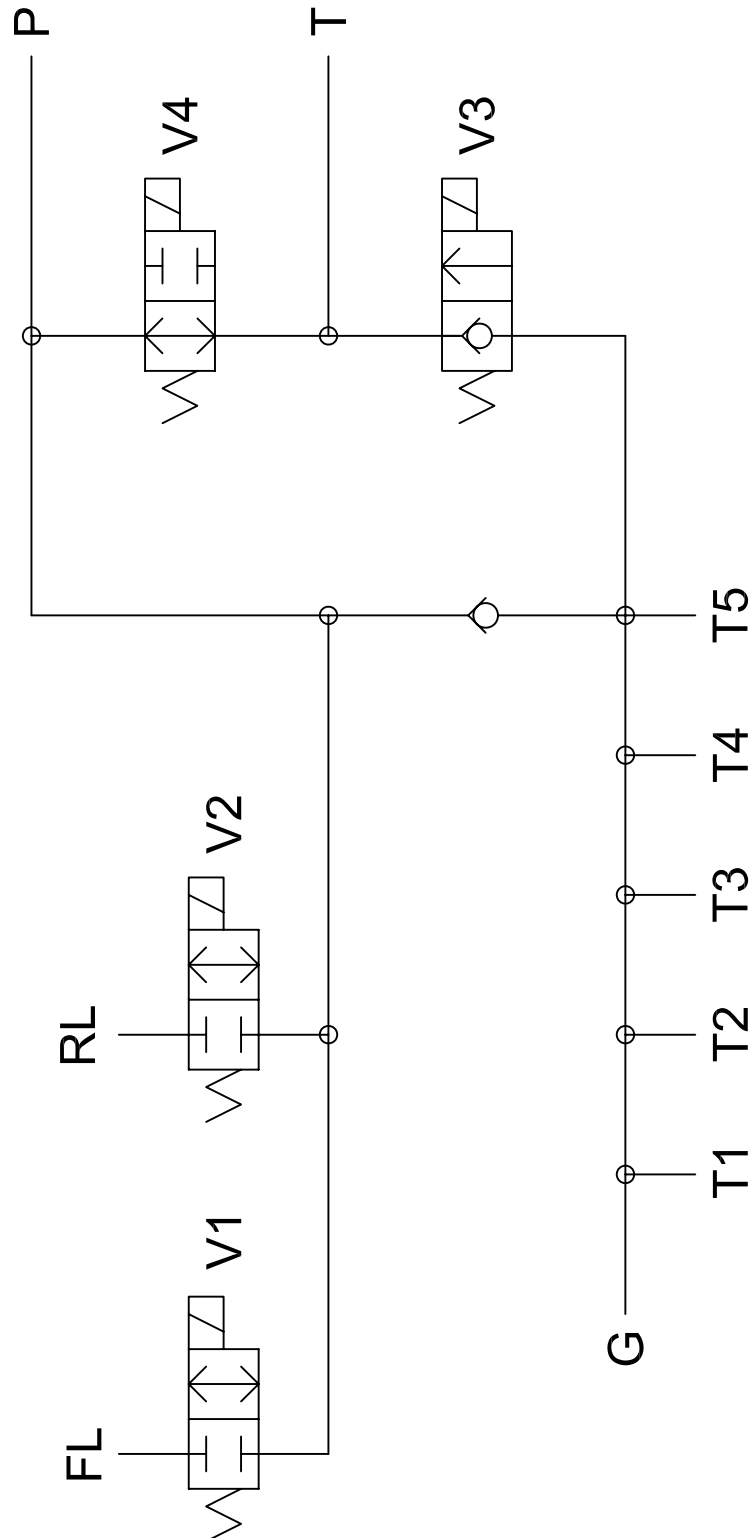
Parts List		
ITEM	P/N	DESCRIPTION
1	450440	Assembly, E/VHT Porta-Frame Manifold
2	305741	Hose, -6FJX to 6FJX x 35" x 1/4" ID
3	305753	Hose, -6FJX to 6FJX x 162" x 1/4" ID
4	450446	Ram, Lift 4" bore x 10 5/8" stroke
5	305724	Fitting, Hyd #6MB - #6MJ w/ Orifice

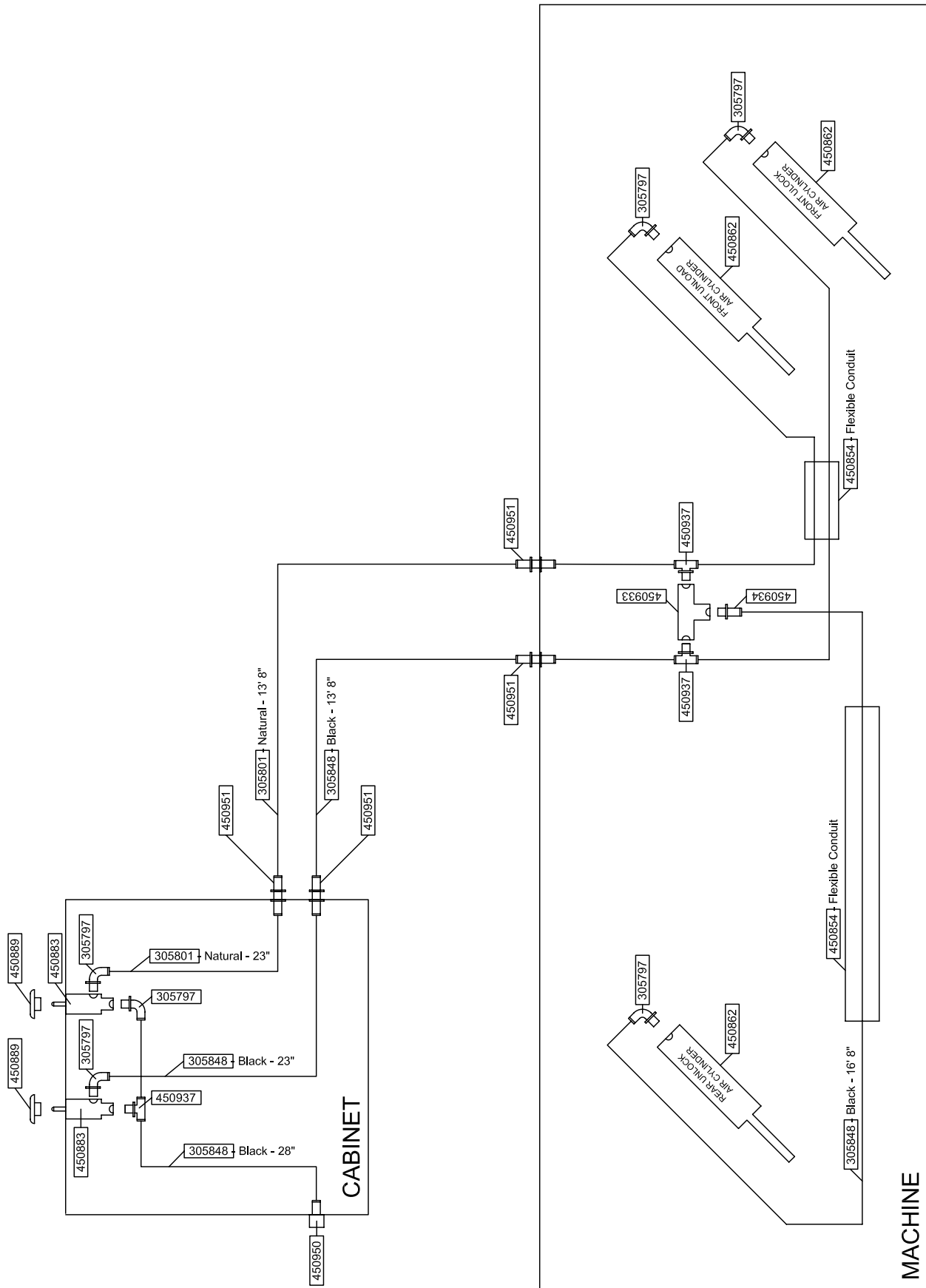
Electrical Harness - E/VHT Porta-Frame



Wire Diagram - Control Pendant





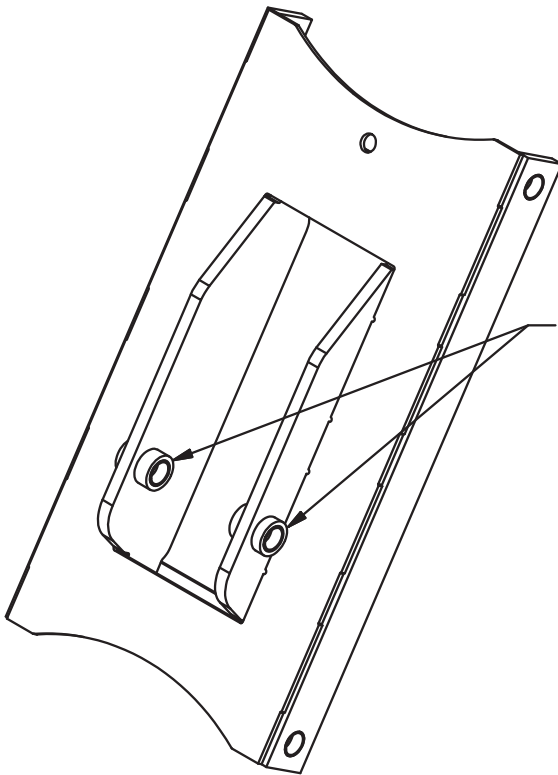


Service Parts Notes

Service Parts Order Notes:

The lift leg, p/n 450580, design changed in April of 2010 and is not compatible with p/n 450495 (lock arm weldment). The lock arm weldment part number changed; however, the lift leg did not. The two lock arm weldment part numbers are 450051 and 450495.

To help with service parts orders, use the graphics below to determine which lock arm the customer needs.



If the lift leg, p/n 450580, has sleeves welded to it (the lift ram pin passes through this sleeve) use E/VHT Lock Arm Weldment p/n 450051.

If sleeves DO NOT exist, use E/VHT Lock Arm Weldment p/n 450495.

Notes

Notes



**996 Industrial Drive
Madison, IN 47250
Phone: 800-445-9262
Fax: 800-275-0173**

www.chiefautomotive.com

Chief reserves the right to alter product specifications
and/or package components without notice.